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(71) Applicant : **SONY CORPORATION**
7-35, Kitashinagawa 6-chome Shinagawa-ku
Tokyo (JP)

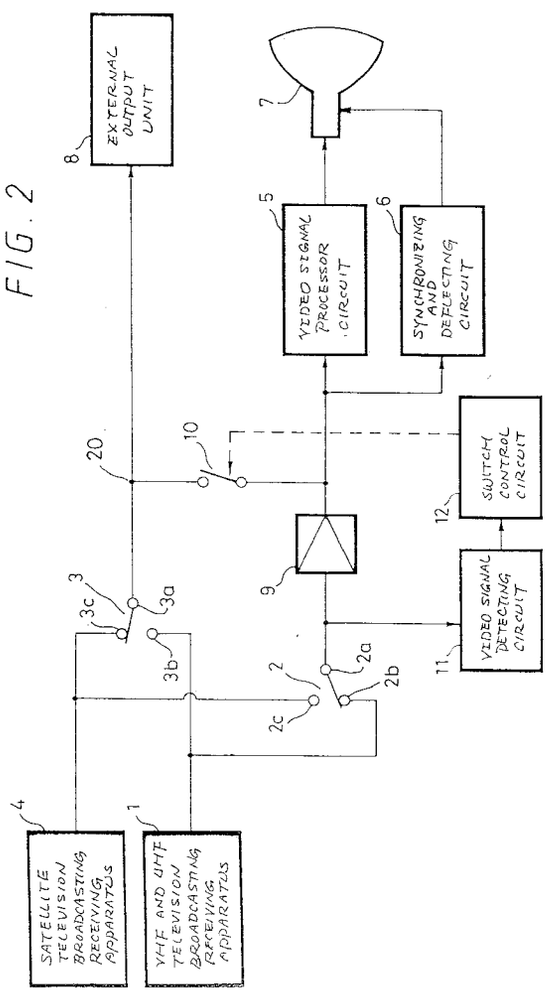
(72) Inventor : **Enomoto, Keiji, c/o Sony Corporation**
7-35 Kitashinagawa 6-chome, Shinagawa-ku
Tokyo (JP)

(74) Representative : **Nicholls, Michael John**
J.A. Kemp & Co., 14, South Square, Gray's Inn
London WC1R 5LX (GB)

(54) Television receiver.

(57) The present invention is directed to a television receiver in which, even when a broadcasting of a broadcasting station received and reproduced at an image display unit is ended and a non-signal state is presented, a video signal can be protected from being disturbed. This television receiver comprises a first video signal receiving apparatus, a second video signal receiving apparatus, an image display unit supplied with an output video signal from the first video signal receiving apparatus, and a circuit for supplying an output video signal of the second video signal receiving means as an external output, wherein when the output video signal of the first video signal receiving means is set in the non-signal state, the output video signal of the second video signal receiving means is automatically supplied to the image display unit.

FIG. 2



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The present invention relates to television receivers and, more particularly, to a television receiver which can receive a satellite television broadcasting and a VHF (very high frequency) and UHF (ultra high frequency) television broadcasting simultaneously.

Description of the Prior Art:

FIG. 1 of the accompanying drawings shows an example of a previously-proposed television receiver which can simultaneously receive a satellite television broadcasting and a VHF and UHF television broadcasting.

In FIG. 1, reference numeral 1 depicts a VHF and UHF television broadcasting receiving apparatus which includes VHF and UHF tuners, an intermediate frequency amplifying circuit, a detector circuit or the like, though not shown. A video signal of VHF or UHF television broadcasting developed at the output side of the VHF and UHF television broadcasting receiving apparatus 1 is supplied to one fixed contacts 2b and 3b of change-over switches 2 and 3.

In FIG. 1, reference numeral 4 depicts a satellite television broadcasting receiving apparatus which includes satellite television broadcasting receiving converter, a tuner, an intermediate frequency amplifying circuit, a detector circuit or the like, though not shown. A video signal of the satellite television broadcasting developed at the output side of the satellite television broadcasting receiving apparatus 4 is supplied to the other fixed contacts 2c and 3c of the change-over switches 2 and 3. A video signal developed at a movable contact 2a of the change-over switch 2 is supplied to a video signal processor circuit 5 and synchronizing and deflecting circuit 6, both of which construct an image display unit. An output signal from the video signal processor circuit 5 is supplied to a cathode ray tube (CRT) 7, and a deflection or the like is performed by using an output signal from the synchronizing and deflecting circuit 6. Then, a picture of this video signal is displayed on the cathode ray tube 7.

The video signal developed at a movable contact 3a of the change-over switch 3 is supplied to an external output unit 8, such as a pin jack or the like that supplies a video signal to a video tape recorder, an external monitor display or the like.

In the television receiver shown in FIG. 1, by connecting the movable contact 2a of the change-over switch 2 to one and the other fixed contacts 2b and 2c, pictures of the VHF and UHF television broadcastings and the satellite television broadcasting can be selectively displayed on the cathode ray tube 7 so that the viewer can watch a desired television broadcasting.

Further, by selectively connecting the movable contact 3a of the change-over switch 3 to one and the other fixed contacts 3b and 3c, the video signals of the VHF and UHF television broadcastings and the video signal of the satellite broadcasting are selectively supplied to the external output unit 8 to which the video tape recorder or the like is connected. Therefore, the viewer can record a video signal of a desired television broadcasting.

Furthermore, in the television receiver shown in FIG. 1, the video signal of the satellite television broadcasting or the VHF and UHF television broadcasting can be simultaneously recorded via the external output unit 8 while a picture of a video signal of the VHF and UHF television broadcasting or satellite television broadcasting is being received and reproduced on the cathode ray tube 7.

The conventional television receiver shown in FIG. 1, however, suffers from the following disadvantage. That is, if a broadcasting of a desired station of the VHF and UHF television broadcasting is finished and no video signal is received while the video signal of a desired station of the satellite television broadcasting is recorded by the video tape recorder (not shown) connected to the external output unit 8 and a video signal of a desired station of the VHF and UHF television broadcasting is received by the cathode ray tube 7, then an oscillator in the synchronizing and detecting circuit 6 of the video display unit is freely oscillated and a noise signal caused by this free oscillation of the oscillator is mixed into the video signal of the external output unit 8. Consequently, the video signal from the external output unit 8 is disturbed by this noise signal.

It is an aim of the preferred embodiment of the present invention to provide an improved television receiver in which the aforesaid shortcomings and disadvantages of the prior art can be eliminated or ameliorated.

More specifically, it is an aim of the preferred embodiment to provide a television receiver in which, when a broadcasting of a broadcasting station received and reproduced at an image display unit is ended and a non-signal state is presented, a video signal output from an external output unit can be protected from being disturbed.

It is another aim of the preferred embodiment to provide a television receiver which can simultaneously receive a satellite television broadcasting and VHF and UHF broadcasting.

According to an aspect of the present invention, there is provided a television receiver comprising:

a) first video signal receiving means;

b) second video signal receiving means;

c) an image display unit arranged to receive an output video signal from said first video signal receiving means; and

d) means for supplying an output video signal of said second video signal receiving means as an external output, wherein, in use, when the output video signal of said first video signal receiving

means is set in a non-signal state, the output video signal of said second video signal receiving means is automatically supplied to said image display unit.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a block diagram showing an example of a conventional television receiver; and

FIG. 2 is a block diagram showing a television receiver according to an embodiment of the present invention.

A television receiver according to an embodiment of the present invention will hereinafter be described with reference to FIG. 2. In FIG. 2 of the accompanying drawings, elements and parts identical to those of FIG. 1 are marked with the same references and therefore need not be described in detail.

According to this embodiment, as shown in FIG. 2, a video signal output from the VHF and UHF television broadcasting receiving apparatus 1 is supplied to one fixed contacts 2b, 3b of the change-over switches 2, 3. An output signal from the satellite television broadcasting receiving apparatus 4 is supplied to the other fixed contacts 2c, 3c of the change-over switches 2, 3.

A video signal developed at the movable contact 2a of the change-over switch 2 is supplied through a buffer circuit 9 to the video signal processor circuit 5 and the synchronizing and deflecting circuit 6 constructing the video display unit. An output signal from the video processor circuit 5 is supplied to the cathode ray tube 7 and deflected on the basis of the output signal from the deflecting circuit 6 so that a picture based on this video signal is displayed on the cathode ray tube.

The video signal developed at the movable contact 3a of the change-over switch 3 is supplied to the external output unit 8, such as the pin-jack or the like, from which the video signal developed at the movable contact 3a of the change-over switch 3 is supplied to the video tape recorder, the external monitor or the like.

According to this embodiment, a connection switch 10 is connected between a junction 20 between the movable contact 3a of the change-over switch 3 and the output side of the buffer circuit 9. A video signal developed at the movable contact 2a of the change-over switch 2 is supplied to a video detecting circuit 11 which detects the existence of this video signal. This video signal detecting circuit 11 generates an output signal when the video signal is lost and the non-signal state is presented. This output signal is supplied to a switch control circuit 12, and at that time, the connection switch 10 is closed by the switch control circuit 12. The connection switch 10 is a normally-open type switch. A rest of arrangement is similar to those of FIG. 1.

Since the television receiver according to this embodiment is constructed as described above, the movable contact 2a of the change-over switch 2 is selectively connected to one and the other fixed contacts 2b and 2c of the change-over switch 2, whereby VHF and UHF television broadcastings and the satellite television broadcasting can be selectively received and reproduced on the cathode ray tube 7. Therefore, the viewer can watch a desired television broadcasting.

Further, the movable contact 3a of the change-over switch 3 is selectively connected to one and the other fixed contacts 3b and 3c, whereby the video signal of the VHF and UHF television broadcasting and the video signal of the satellite television broadcasting can be selectively supplied to the external output unit 8 to which the video tape recorder or the like is connected. Therefore, a video signal of a desired television broadcasting can be recorded.

Furthermore, according to the television receiver of this embodiment, while the VHF and UHF television broadcasting or satellite broadcasting is received and reproduced on the cathode ray tube 7, the video signal of the satellite television broadcasting or video signal of VHF and UHF television broadcasting can be simultaneously recorded via the external output unit 8.

According to the embodiment of the present invention, the movable contact 2a of the change-over switch 2 is connected to one fixed contact 2b and the movable contact 3a of the change-over switch 3 is connected to the other fixed contact 3c, whereby the video signal of a desired station of the satellite television broadcasting can be recorded by the video tape recorder through the external output unit 8. Also, when the video signal of desired station of the VHF and UHF television broadcastings is received and reproduced on the cathode ray tube 7, if the broadcasting of the desired station of the VHF and UHF television broadcasting is ended and the non-signal state is presented, then this non-signal state is detected by the video signal detecting circuit 11 and the connection switch 10 is closed. At that time, the video signal of the desired station of the satellite television broadcasting from the external output unit 8 is supplied to the video signal processor circuit 5 and the synchronizing and deflecting circuit 6. The video signal processor circuit 5, the synchronizing and deflecting circuit 6 and the cathode ray tube 7 are operated in synchronism with the video signal derived from the external output unit 8 so that the video signal processor circuit 5, the synchronizing and deflecting circuit 6 and the cathode ray tube 7 can be prevented from disturbing the video signal derived from the external output unit 8. Conversely, when the video signal of the desired station of the satellite television broadcasting is received and reproduced on the cathode ray tube 7 and the video signal of the desired station of the

VHF and UHF television broadcastings is output from the external output unit 8, the television receiver of the present invention is operated similarly as described above.

In this case, a picture of the video signal output from the external output unit 8 is received and reproduced on the cathode ray tube 7. When such a picture need not be displayed, other portions than the synchronizing signal of this video signal are processed in a blanking fashion.

According to this embodiment, since the video signal output from the external output unit 8 is supplied to the image display unit, there is then the advantage such that a design of substrate, a wire treatment, a shielding treatment can be carried out with ease.

While the television receiver includes the two television broadcasting receiving apparatus as described above, the present invention is not limited thereto and may be similarly applied to a television receiver which includes three television broadcasting receiving apparatus or more.

With the above described embodiment of receiver, even when the broadcasting of the broadcasting station received at the image display unit is ended and the non-signal state is presented, the video signal output from the external output unit can be prevented from being disturbed.

Having described a preferred embodiment of the invention with reference to the accompanying drawings, it is to be understood that the invention is not limited to that precise embodiment and that various changes and modifications could be effected by one skilled in the art without departing from the spirit or scope of the invention as defined in the appended claims.

Claims

1. A television receiver comprising:
   a) first video signal receiving means;
   b) second video signal receiving means;
   c) an image display unit arranged to receive an output video signal from said first video signal receiving means; and
   d) means for supplying an output video signal of said second video signal receiving means as an external output, wherein, in use, when the output video signal of said first video signal receiving means is set in a non-signal state, the output video signal of said second video signal receiving means is automatically supplied to said image display unit.

2. The television receiver according to claim 1, wherein, in use, the output video signal of said first video signal receiving means is supplied to first fixed contacts of first and second change-over switches and the output video signal of said second video signal receiving means is supplied to second fixed contacts of said first and second change-over switches.

3. The television receiver according to claim 2, wherein a connection switch is provided between a junction of an external output unit, from which output video signals developed at movable contacts of said first and second change-over switches are, in use, supplied to an external device, and an output side of a buffer circuit.

4. The television receiver according to claim 3, further comprising a switch control circuit for controlling an operation of said connection switch.

5. The television receiver according to claim 3 or claim 4, wherein said external device is a video tape recorder or external monitor receiver.

6. The television receiver according to any of claims 2 to 5, wherein, in use, the output video signal developed at the movable contact of said second change-over switch is supplied to a video signal detecting circuit for detecting the existence of the output video signal.

7. The television receiver according to any of the preceding claims, wherein said image display unit is formed of a video signal processor circuit, a synchronizing and deflecting circuit and a cathode ray tube.

8. The television receiver according to any of the preceding claims, wherein said first video signal receiving means is adapted to receive a video signal of VHF and UHF television broadcasting and said second video signal receiving means is adapted to receive a video signal of satellite television broadcasting.

9. The television receiver according to any of the preceding claims, comprising at least one further video signal receiving means.

FIG. 1 (PRIOR ART)

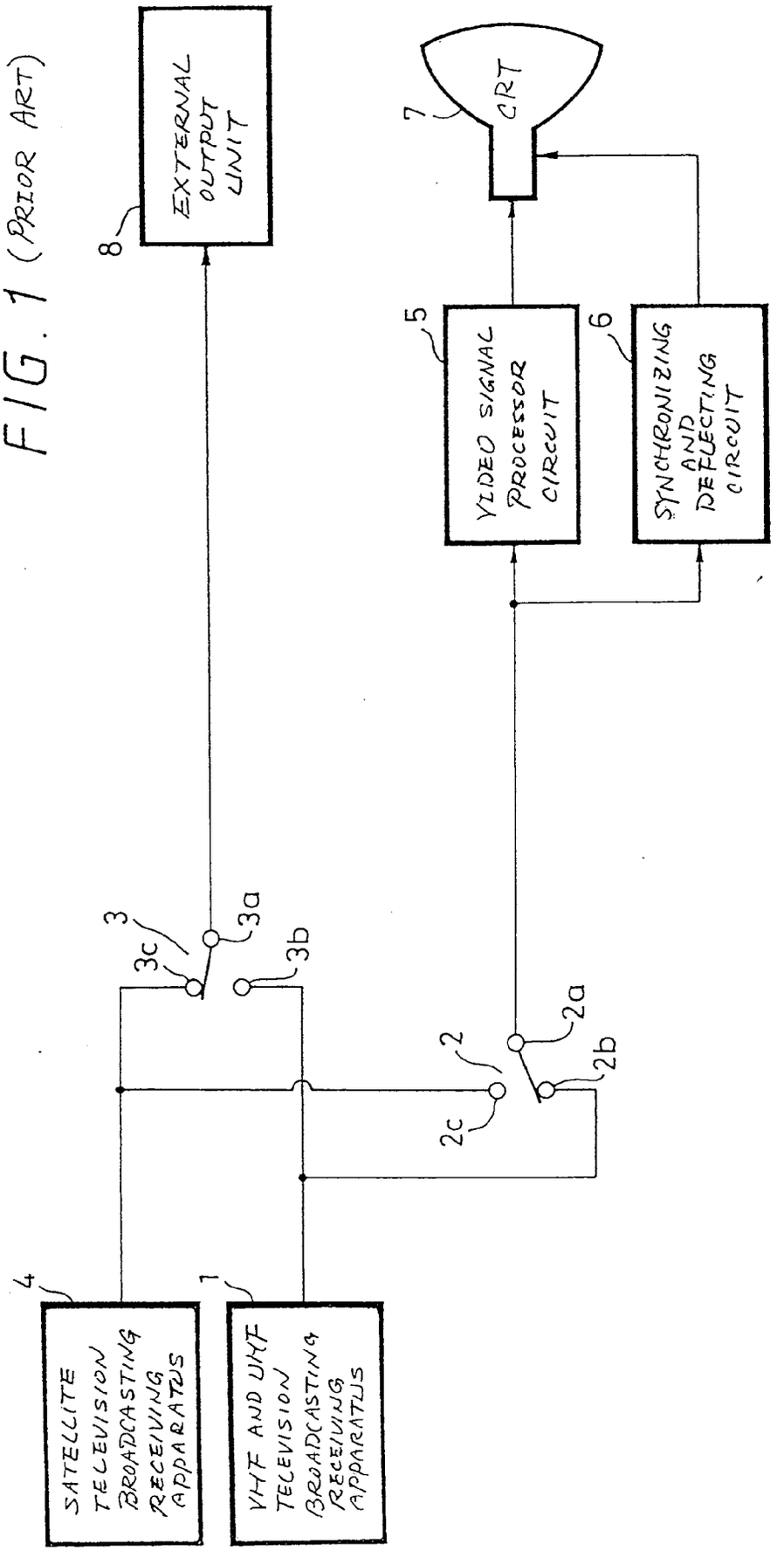
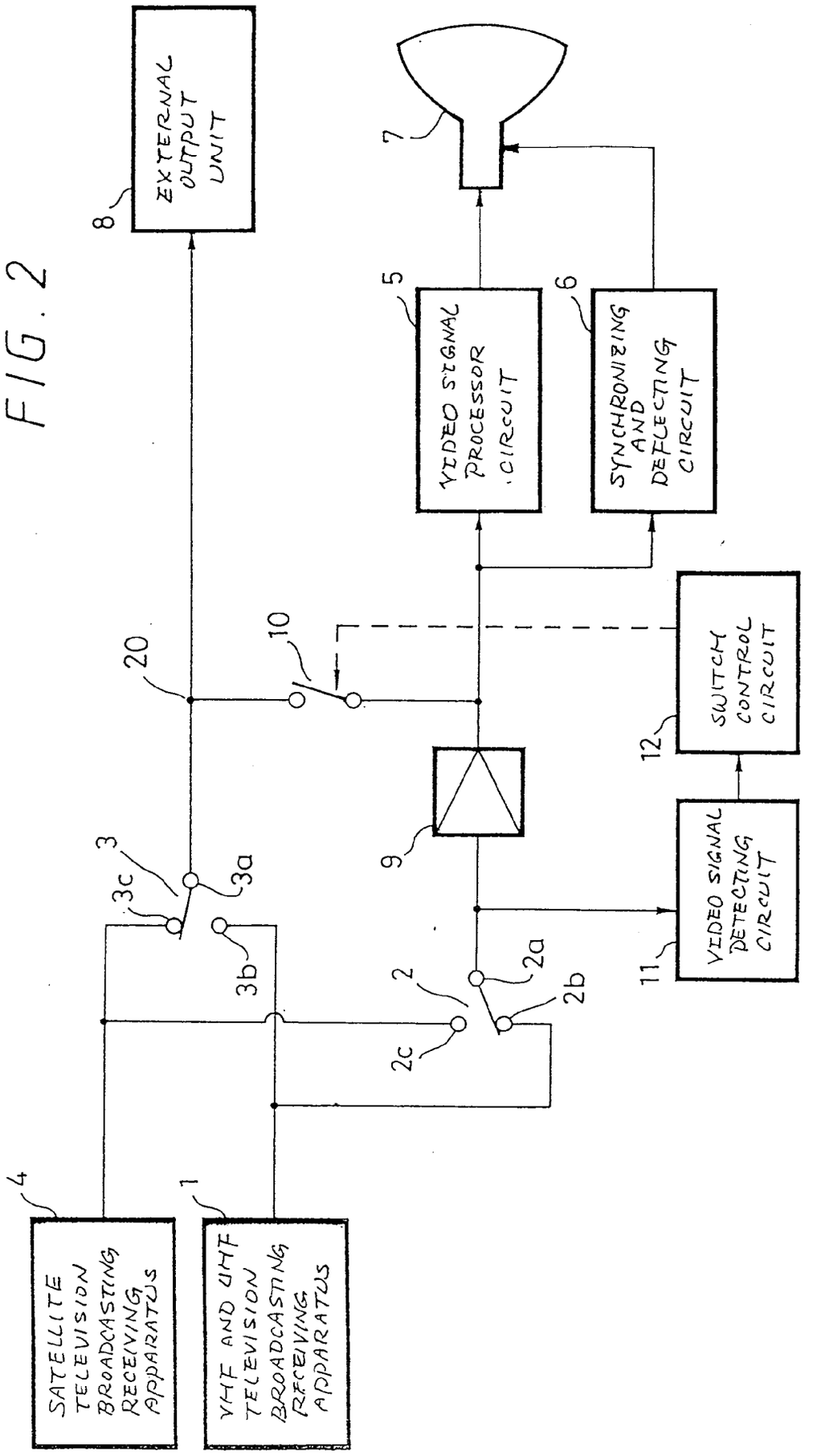


FIG. 2


SATELLITE TELEVISION BROADCASTING RECEIVING APPARATUS
4
VHF AND UHF TELEVISION BROADCASTING RECEIVING APPARATUS
1
EXTERNAL OUTPUT UNIT
8
VIDEO SIGNAL PROCESSOR CIRCUIT
5
SYNCHRONIZING AND DEFLECTING CIRCUIT
6
7
SWITCH CONTROL CIRCUIT
12
VIDEO SIGNAL DETECTING CIRCUIT
11
9
10
20
3
3a
3b
3c
2
2a
2b
2c

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EUROPEAN SEARCH REPORT

Application Number
EP 92 31 1100

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y A	US-A-4 272 784 (SAITO ET AL.) * column 1, line 39 - line 64; figures 1,2 * ---	1,2,7,9 3-5	H04N5/44
Y	PATENT ABSTRACTS OF JAPAN vol. 7, no. 178 (E-191)6 August 1983 & JP-A-58 084 576 (MATSUSHITA DENKI SANGYO K.K.) 20 May 1983	1,2,7,9	
A	* abstract * ---	3,4,6	
A	PATENT ABSTRACTS OF JAPAN vol. 10, no. 141 (E-406)24 May 1986 & JP-A-61 004 329 (MATSHUSHITA DENKI SANGYO K.K.) 10 January 1986 * abstract * ---	1,3,4,6, 7-9	
A	EP-A-0 300 193 (DEUTSCHE THOMSON-BRANDT GMBH) * abstract; figure 1 * ---	1,7-9	
A	PATENT ABSTRACTS OF JAPAN vol. 10, no. 293 (E-443)4 October 1986 & JP-A-61 111 079 (SHARP CORP) 29 May 1986 * abstract * -----	1-3,5-7, 9	TECHNICAL FIELDS SEARCHED (Int. Cl.5) H04N

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 MARCH 1993	FUCHS P.

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